

- C-1
Lutz
DiBugnara
1. A semiconductor device comprising:
a substrate; and
a semiconductor element and at least one security coating provided on a first side of the substrate, the at least one security coating including at least two powdery fillers incorporated in a matrix,
wherein a first powdery filler scatters at least visible light, and a difference between a refractive index of the first powdery filler and that of the matrix is at least 0.3, and the coating comprises a second powdery filler which is a substantial absorber of radiation of wavelengths at least in the range of 800 to 1400 nm and is free of heavy metals.

REMARKS

Claims 1-3 stand rejected under 35 U.S.C. 102 as being anticipated by U.S. Patent 5,258,337 (Lantz, II). Claim 4 was rejected under 35 U.S.C. 102(a) as being unpatentable over Lantz in view of U.S. Patent No. 4,243,427 (DiBugnara). Claim 5 was rejected under 35 U.S.C. 103 as unpatentable over Lantz in view of DiBugnara and in further view of U.S. Patent No. 6,144,106 (Bearing et al.). Claims 6 and 7 were rejected under 35 U.S.C. 103 as unpatentable over Lantz in view of U.S. Patent 5,053,992 (Gilberg et al.). Claim 8 was rejected under 35 U.S.C. 103(a) as unpatentable over Lantz in view of Gilberg further in view of U.S. Patent No. 5,892,661 (Stafford et al.). Claim 1 has been amended to define still more clearly what Applicants regard as their invention. Claims 1 and 8 are the independent claims. Favorable reconsideration is respectfully requested.

Applicants respectfully submit that the pending claims, as amended, are patentable for at least the following reasons.

Claim 1 as amended is directed to a semiconductor device comprising a substrate, and a semiconductor element and at least one security coating provided on a first side of the substrate, the at least one security coating including at least two powdery fillers incorporated in a matrix, wherein a first powdery filler scatters at least visible light, and a difference between a refractive index of the first powdery filler and that of the matrix is at least 0.3, and the coating comprises a second powdery filler which is a substantial absorber of radiation of wavelengths at least in the range of 800 to 1400 nm and is free of heavy metals. Independent Claim 8 recites similar features as recited in Claim 1.

Lantz II, as understood by Applicants, relates to a process of preventing visual access to a semiconductor device by applying an opaque ceramic coating to integrated circuit devices. The coating also provides the device with protection against environmental stresses, ionic contamination and mechanical abrasion.

As noted above, it is a feature of Claim 1 that the difference between the refractive index of the first powdery filler and that of the matrix is at least 0.3. As discussed at the last paragraph of page 2 of the specification, the first powdery filler operates to scatter visible light. Radiation in the visible spectrum as well as in the ultraviolet spectrum is thus inhibited from penetrating by scattered reflection. In order to ensure that the coating has sufficient scattering potential, the inventors discovered that the difference between the refractive index of the first filler and that of the matrix should at least be 0.3. In addition, the invention includes at least a second powdery filler is used which is a substantial absorber of radiation of wavelengths at least in the range of 800 to 1400 nm and is free of heavy metals.

The Office Action, in discussing the references noted above, states that “at least 0.3 (Applicant admits that the difference between the refractive index ... is of the order of 0.3) in the last paragraph of page 2 and the first paragraph of page 3 of the present Application. Applicants note that they have discovered that a coating having such a difference between the refractive index of the first powdery filler and that of the matrix inhibits transmission of visible light and of near infrared radiation.

As admitted on page 1, lines 9-23, as well as shown in Lantz, certain oxides and nitrides may be used as a filler. However, as further described on page 1, lines 16-23, these have certain drawbacks.

In this regard, nothing found in Lantz, II teaches or suggests that the difference between the refractive index of the first powdery filler and that of the matrix is at least 0.3 or that such a difference between the refractive index of the first powdery filler and that of the matrix inhibits transmission of visible light and of near infrared radiation as recited in Claim 1.

In response to the Office Action comments regarding inherent properties of a matrix and other materials, applicants respectfully disagree with the Office Action’s conclusions. In particular, Applicants on page 2, line 34 through page 3, line 1, indicate that generally a matrix may have a refractive index in the order of 1.4-1.5 and if this type of matrix used that certain other materials may be used to specifically obtain at least the 0.3 difference described in the claimed invention above. Applicants have not provided any evidence of inherent properties of a matrix or otherwise, as suggested in the Office Action.

Moreover, the matrix of the coating can be chosen from several materials, such as

mono(metal)phosphate compound or a component prepared from a silica precursor resin. Importantly, it is the difference of refractive indexes of the specific matrix and filler used, as the refractive indexes of both materials vary, that is claimed in the invention. And again, Applicants have not provided any evidence as to the refractive index of the silica precursor used in Lantz. Applicants respectfully request the Examiner provide such extrinsic evidence of inherent characteristics of such materials (e.g. matrixes and fillers) pursuant to *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) and MPEP 2131.02 III.

Moreover, it is not seen how Lantz II's use of certain oxides and nitrides made obvious the invention as asserted in the Office Action, without improper hindsight by "use[ing] the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention," see *In Re Denis Rouffet*, 47 USPQ.2d 1453, 1457-58 (Fed. Cir. 1998). No motivation has been provided by the Office Action to show reasons that the skilled artisan, confronted with the same problems as the inventor would select the elements from the cited prior art references for combination in the manner claimed, see *Id.*

Lastly, to simply state that the general idea of the invention is obvious by the above-discussed art is believed improper. To allege this is merely to reduce claim 1 and 8 to a mere "gist" or "thrust." Such an interpretation underestimates the "as a whole" requirement of MPEP 2141.02, and distills the complexities of the actual system of these claims to an abstract general buzz word, precisely the problem obviated by MPEP 2141.02.

A review of the other art of record has failed to reveal anything that, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the

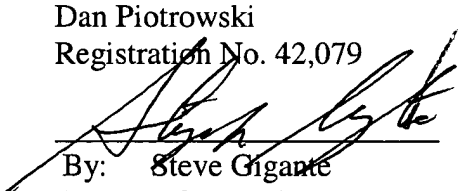
independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or the other of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully requests favorable consideration and reconsideration and early passage to issue of the present application.

Respectfully submitted,

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Appendix of Marked-up Amendments

IN THE CLAIMS

Please amend the claims as follows:

1. (Amended) A semiconductor device comprising:
a substrate; and
a semiconductor element and at least one security coating provided on a first side of the substrate, the at least one security coating including at least two powdery fillers incorporated in a matrix,
wherein ~~a first powdery filler scatters at least visible light, and a difference~~ between a refractive index of ~~a~~ the first powdery filler and that of the matrix is at least 0.3, and the coating comprises a second powdery filler which is a substantial absorber of radiation of wavelengths at least in the range of 800 to 1400 nm and is free of heavy metals.